

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :
BOIRE PHILIPPE ET AL : ATTN: APPLICATION DIVISION
SERIAL NO: NEW APPLICATION :
FILED: HEREWITH :
FOR: SUBSTRATE WITH A
PHOTOCATALYTIC COATING

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Prior to examination on the merits, please amend the above-identified application as follows:

IN THE CLAIMS

Please cancel Claims 1-24, and replace with new Claims 25-43 as follows:

25. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having photocatalytic properties, and comprising titanium oxide at least partly crystallized in the anatase form, and obtained by thermal decomposition of titanium precursors selected from the group consisting of organo-metallic precursors and metallic halide precursors, wherein said coating has a

thickness between 5 and 50 nm, wherein the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm.

26. (New) A coated substrate which is a glass, ceramic or vitroceramic substrate provided on at least a portion of one of its faces with a coating having a photocatalytic properties, and comprising titanium oxide at least partly crystallized in the anatase form, and a thin layer forming a barrier to alkali metals originating from the substrate, and located between said substrate and said coating, wherein the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm.

27. (New) A coated substrate which is a glass, ceramic or vitroceramic substrate provided on at least a portion of one of its faces with a coating having photocatalytic properties, and comprising titanium oxide at least partly crystallized in the anatase form, and wherein said coating is hydrophilic, and has a contact angle with water below 5° after exposure to luminous rays, wherein the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 1000 nm.

28. (New) A coated substrate which is a glass, ceramic or vitroceramic substrate provided on at least a portion of one of its faces with a coating having photocatalytic properties, and comprising titanium oxide at least partly crystallized in the anatase form, and wherein said coating has a root mean square (RMS) rugosity between 2 and 20 nm, wherein the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm.

29. (New) Glass, ceramic or vitroceramic substrate provided on at least one of its faces with a coating having hydrophilic and/or photocatalytic properties and containing at least partially crystalline titanium oxide and having a thickness between 10 and 80 nm.

30. (New) The glass, ceramic or vitroceraamic substrate according to claim 29, wherein said thickness is between 20 and 50 nm.

31. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form, wherein said coated substrate is bendable and/or temperable.

32. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form, wherein said coating is obtained by chemical vapor deposition with at least a titanium precursor selected from the group consisting of titanium alcoholates.

33. (New) The coated substrate according to claim 32, wherein the titanium alcoholate is titanium tetra isopropylate of tetra ethoxy titanium.

34. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form, wherein said coating contains also at least one oxide with a lower refractive index than titanium oxide, the titanium content of the coating being at least 40%, by weight with respect to the total weight of oxides in the coating.

35. (New) The coated substrate according to claim 34, wherein said titanium content is at least 50% by weight with respect to the total weight of oxides in the coating.

36. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having hydrophilic and/or

photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form, wherein there is at least a layer arranged between the substrate and said coating, said layer being electrically conductive.

37. (New) A coating according to claim 36, wherein the conductive layer is selected from the group consisting of indium tin oxide, tin oxide doped with fluorine, tin oxide doped with antimony, zinc oxide doped with fluorine, zinc oxide doped with aluminium, zinc oxide doped with tin, tin oxides that are stoichiometrically deficient in oxygen, and zinc oxides that are stoichiometrically deficient in oxygen.

38. (New) An electrically controlled variable absorption glazing wherein at least one of the external faces of said glazing is provided with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form.

39. (New) A windshield wherein at least the face of said windshield turned toward the inside of the passenger compartment is provided with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form.

40. (New) A coated substrate which is a glass, ceramic or vitroc ceramic substrate provided on at least a portion of one of its faces with a coating having anti-ultraviolet properties and comprising titanium oxide at least partly crystallized in the anatase form.

41. (New) An architectural material selected from the group consisting of facing material, cladding material, roofing material, tiles, and provided on at least a portion of one of its faces with a coating having anti-ultraviolet and/or dirt-repellent and/or bactericidal

and/or antimicrobial properties and comprising titanium oxide at least partly crystallized in the anatase form.

42. (New) A coated substrate which is a glass, ceramic or vitroceraamic substrate provided on at least a portion of one of its faces with a coating having hydrophilic and/or photocatalytic properties and comprising titanium oxide at least partly crystallized in the anatase form, wherein said coated substrate has a scattered light transmission of less than 0.6%.

43. (New) Glass, ceramic or vitroceraamic substrate provided on at least one of its faces with a coating having hydrophilic and/or photocatalytic properties and containing titanium oxide deposited by cathodic sputtering or chemical vapor deposition.

DISCUSSION OF THE AMENDMENT

Claims 1-24 have been cancelled and replaced with new Claims 25-43.

Claims 25-28 correspond to Claims 1, 3, 4 and 5, respectively, in U.S. Patent No. 6,103,363, which is the patent issued on the grandparent of the present application, except that the average size range for the crystallites has been changed, wherein the presently-recited maximum of 100 nm is supported in the specification at page 3, line 23.

Claims 29 and 30 are supported in the specification at page 8, lines 32-33.

Claim 31 is supported in the specification at page 17, lines 6-7. Note that the term "temperable" does not appear therein; rather, the term "dip-coated" appears. The term "dip-coated" is the result of an incorrect English translation from the original French term "trempable" in the originating PCT Application PCT/FR96/01421, filed September 13, 1996. The term designates a mechanical strengthening of the glass plate by a heating step followed

by a very quick cooling. If the Examiner requires, Applicants are willing to supply a declaration regarding the above.

Claims 32 and 33 are supported in the specification at page 13, lines 31-32, and page 19, line 6.

Claims 34 and 35 are supported in the specification at page 4, lines 25-29.

Claim 36 is supported in the specification at page 9, line 24.

Claim 37 is supported in the specification at page 9, lines 28-33.

Claim 38 is supported in the specification at page 12, lines 23-34.

Claim 39 is supported in the specification at page 11, line 36, through page 12, line 6.

Claim 40 is supported in the specification at page 12, line 20.

Claim 41 is supported in the specification at page 12, lines 11-22.

Claim 42 is supported in the specification at page 17, lines 5-10.

Claim 43 is supported in the specification at page 3, lines 31-37.

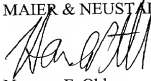
No new matter is believed to have been added by the above amendment. Claims 25-43 are now pending in the application.

REMARKS

The application is now ripe for examination on the merits. An early examination is respectfully solicited.

Respectfully submitted,

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IN THE CLAIMS

--Claims 1-24 (Cancelled).

Claims 25-43 (New).--

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